

CLAIMS

WE CLAIM:

1. A method of increasing the amount of a calcium channel blocker delivered to the brain of a patient suffering from hypertension, comprising nasally administering a pharmaceutical composition comprising a therapeutically effective amount of the calcium channel blocker.
2. The method of claim 1, wherein the calcium channel blocker is selected from verapamil, diltiazem, cinnarizine, and nifedipine.
3. The method of claim 1, wherein the calcium channel blocker represents about 0.2% to about 30% by weight of the composition.
4. The method of claim 3, wherein the calcium channel blocker represents about 2% to about 20% by weight of the composition.
5. The method of claim 1, wherein the composition further comprises a pharmaceutically acceptable carrier that is suitable for nasal drug administration.
6. The method of claim 5, wherein the composition is administered in the form of an aerosol nasal spray.
7. The method of claim 6, wherein the carrier is a propellant.
8. The method of claim 5, wherein the composition is administered in the form of a liquid.
9. The method of claim 8, wherein the carrier is purified water, saline, buffer, or a combination of any of the foregoing.
10. The method of claim 1, wherein the composition is administered in the form of a dry powder.

11. The method of claim 5, wherein the composition is administered in the form of a dry powder.
12. The method of claim 11, wherein the carrier is selected from fructose, galactose, glucose, lactitol, lactose, maltitol, maltose, mannitol, melezitose, myoinositol, palatinite, raffinose, stachyose, sucrose, trehalose, xylitol, as well as hydrates thereof, and combinations of any of the foregoing.
13. The method of claim 12, wherein the carrier is lactose.
14. The method of claim 1, wherein the composition is administered in a unit dosage form containing the calcium channel blocker in an amount of about 0.2 to about 20 mg of the composition.
15. The method of claim 1, wherein the composition further comprises a therapeutically effective amount of at least one additional pharmaceutically active agent.
16. The method of claim 15, wherein the additional active agents are selected from diuretics, β -blockers, ACE inhibitors, angiotensin II receptor blockers, adrenergic inhibitors, and vasodilators.
17. The method of claim 1, wherein the composition is formulated to provide timed release.
18. The method of claim 1, wherein the composition is formulated to provide sustained release.
19. The method of claim 1, wherein the composition is formulated to provide controlled release.

20. The method of claim 1, wherein the composition further comprises at least one excipient.
21. The method of claim 20, wherein the excipient is a bioadhesive material.
22. The method of claim 21, wherein the bioadhesive material is selected from Carbopol, methylcellulose, hydroxypropyl methylcellulose, hydroxyethylcellulose, hydroxypropylcellulose, sodium carboxymethylcellulose, polyvinyl alcohol, polyvinylpyrrolidone, polyacrylates, polyacrylamide, dextran, gellan gum, poloxamer, calcium polycarbophil, cellulose acetate phthalate, sodium hyaluronate, hyaluronic acid and alginate, chitosan.
23. The method of claim 20, wherein the excipient is a permeation enhancer.
24. A method of treating a patient suffering from hypertension comprising targeting delivery of a calcium channel blocker to the brain of the patient by administering the calcium channel blocker intranasally.
25. An improved method of treating a cardiovascular disorder with a calcium channel blocker; the improvement comprising administering the calcium channel blocker nasally to maximize the amount of calcium channel blocker reaching the brain and to minimize peripherally mediated adverse events.
26. A method of claim 25, wherein the cardiovascular disorder is hypertension.
27. A pharmaceutical composition formulated for nasal drug administration, comprising: a therapeutically effective amount of the calcium channel blocker selected from cinnarizine, and nifedipine.
28. The composition of claim 27, wherein the composition further comprises a pharmaceutically acceptable carrier that is suitable for nasal drug administration.

29. The composition of claim 28, wherein the composition is administered in the form of an aerosol nasal spray.
30. The composition of claim 29, wherein the carrier is a propellant.
31. The composition of claim 28, wherein the composition is administered in the form of a liquid.
32. The composition of claim 31, wherein the carrier is purified water, saline, buffer, or a combination of any of the foregoing.
33. The composition of claim 27, wherein the composition is administered in the form of a dry powder.
34. The composition of claim 28, wherein the composition is administered in the form of a dry powder.
35. The composition of claim 34, wherein the carrier is selected from fructose, galactose, glucose, lactitol, lactose, maltitol, maltose, mannitol, melezitose, myoinositol, palatinite, raffinose, stachyose, sucrose, trehalose, xylitol, as well as hydrates thereof, and combinations of any of the foregoing.
36. The composition of claim 27, wherein the composition further comprises a therapeutically effective amount of at least one additional pharmaceutically active agent.
37. The composition of claim 27, wherein the composition is formulated to provide timed release.
38. The composition of claim 27, wherein the composition is formulated to provide sustained release.

- 39. The composition of claim 27, wherein the composition is formulated to provide controlled release.
- 40. The composition of claim 27, wherein the composition further comprises at least one excipient.
- 41. The composition of claim 40, wherein the excipient is a bioadhesive material.
- 42. The composition of claim 40, wherein the excipient is a permeation enhancer.
- 43. A nasal administrable drug delivery device, comprising: the composition of claim 28 and a means for housing and dispensing unit dosages of the composition into a nasal passage of a patient.
- 44. The device of claim 43, comprising a dry powder inhaler, metered-dose inhaler, medicine dropper, or pump spray bottle.